

A Preliminary Mental Health Analysis of Post-Deployment Health Assessment DD2796

4th of 7 presentations for DEEP Update

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Presentation Overview

- Background:
 - Purpose of DD2796 and this analysis
 - Mental health questions in DD2796
- Methods of analysis
- Analysis results
- Some factors to consider
- CART generated mental stress index
- Conclusions
- Limitations of this Analysis
- Future Possibilities

Background on DD Form 2796

- “The Post-Deployment Health Assessment (DD Form 2796) is primarily used to document post-deployment health and any deployment-related occupational/environmental (O/E) exposures. The form provides **a preliminary clinical template** for the assessment of O/E exposures potentially associated with both physical and psychological ailments.”

- *Guidelines for Post-Deployment Health Screening Utilizing the DD Form 2796*

Background on DD Form 2796 (cont'd)

- “The 2796 is a screening tool and is intended to be a starting point towards a discussion of potential psychosocial issues with a HCP [health care provider]. **It is not intended to be a definitive, diagnostic tool.**”
- It “is **not necessarily a sensitive screening tool** for detecting or predicting specific post-deployment medical conditions such as...post-traumatic stress disorder...”

- *Guidelines for Post-Deployment Health Screening Utilizing the DD Form 2796*

Background on DD Form 2796 (cont'd)

- Completed by all service members within the 5 days preceding or following the end of their deployment.
- Basic information on:
 - Demographics
 - Medications
 - General health
 - Mental health
 - Perceived environmental exposures
 - Combat stressors
 - Health care provider concerns and referrals

Purpose of this Analysis

- Identify associations between mental health responses and:
 - selected demographic data
 - selected general health data
 - exposure to combat stressors
 - perceived environmental exposures

Methods of Analysis

1. Data used: A random sample of DD2796 forms of Army personnel who were deployed to Iraq or Kuwait in 2003. (N=2726)
2. Developed an unweighted “mental stress index” to count the number of affirmative mental health responses given by each service member.

Methods of Analysis (cont'd)

3. Used SPSS to run statistical analyses comparing the mental stress index with demographics, general health, combat stressors, and perceived environmental exposures.

Mental Health Questions

- Q10: Are you currently interested in receiving help for a stress, emotional, alcohol or family problem? (No/Yes)
- Q11: Over the last 2 weeks, how often have you been bothered by any of the following problems? (None/Some/A lot)
 - a) Little interest or pleasure in doing things
 - b) Feeling down, depressed, or hopeless
 - c) Thoughts that you would be better off dead or hurting yourself in some way

Mental Health Questions (cont'd)

- Q12: Have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month, you ...(No/Yes)
 - a) Have had any nightmares about it or thought about it when you did not want to?
 - b) Tried hard not to think about it or went out of your way to avoid situations that remind you of it?
 - c) Were constantly on guard, watchful, or easily startled?
 - d) Felt numb or detached from others, activities, or your surroundings?

Mental Health Questions (cont'd)

- Q13: Are you having thoughts or concerns that...(No/Yes/Unsure)
 - a) You may have serious conflicts with your spouse, family members, or close friends?
 - b) You might hurt or lose control with someone?

- HCP4 (Health Care Provider Administered Question #4): During this deployment have you sought, or do you now intend to seek, counseling or care for your mental health? (Yes/No)

Unweighted Mental Stress Index

- For each mental health response given
 - 0 = negative response
 - 1 = affirmative response
- Unweighted index is the sum of all 1's
- Score range:
 - 0 for no affirmative responses
 - 11 for all affirmative responses

Demographics

- Dependent variable:

- Mental stress index

- Independent variables:

- Time in Theater

- (<6 months; 6-12 months; >12 months)

- Age group

- (18-24; 25-29; 30-34; 35-39; 40-44; 45-49; 50-54; 55-59; 60-64)

- Gender

- Component

- (Active duty; National Guard; Reserve)

- **Grade Group***

- (E1-E4; E5-E9; W1-W4; O1-O3; O4-O9)

*Significant at .01 level

Demographics (cont'd)

Independent Variable		N	Mean MS Index	P
Grade Group	E1-E4	1262	1.10	<.01
	E5-E9	1102	1.10	
	W1-W4	63	.349	
	O1-O3	182	.571	
	O4-O9	88	.568	

*Independent Samples T-Test for Comparing Means

General Health

Independent Variable	N	Mean MS Index	P
Q1 Health change? Same/better Worse	1993 674	.706 1.98	<.01
Q2 Number of times at sick call (correlation)			<.01
Q3 Spent night(s) in hospital	Yes No	232 2465	2.03 .934
			<.01

General Health (cont'd)

Independent Variable		N	Mean MS Index	P
HCP1 Health status	Poor	28	3.25	<.01
	Fair	286	2.29	
	Good	1067	1.18	
	Very good	912	.645	
	Excellent	399	.419	
HCP2 Medical/dental	Yes	1023	1.59	<.01
	No	1666	.683	
HCP3 Profile or light duty	Yes	350	1.73	<.01
	No	2342	.920	
HCP6 Health concerns	Yes	632	1.60	<.01
	No	2053	.849	

Combat Stressors

Independent Variable		N	Mean MS Index	P
Q7 See anyone wounded, killed, or dead?	No	1414	.666	<.01
	Yes	1283	1.43	
Q8 Direct combat, discharged weapon?	No	462	1.78	<.01
	Yes	2235	.873	
Q9 Feel you were in danger of being killed?	No	1316	.468	<.01
	Yes	1381	1.56	

Environmental Exposures

Q14: While you were deployed, were you exposed to

- DEET
- Pesticide treated uniforms
- Environmental pesticides
- Flea/tick collars
- Pesticide strips
- Oil fire smoke
- Smoke from burning trash/feces
- Vehicle exhaust fumes
- Tent heater smoke
- JP8/other fuels
- Fog oils
- Solvents
- Paints
- Ionizing radiation
- Radar/microwaves
- Lasers
- Loud noises
- Excessive vibration
- Industrial pollution
- Sand/dust
- Depleted Uranium
- Other exposures

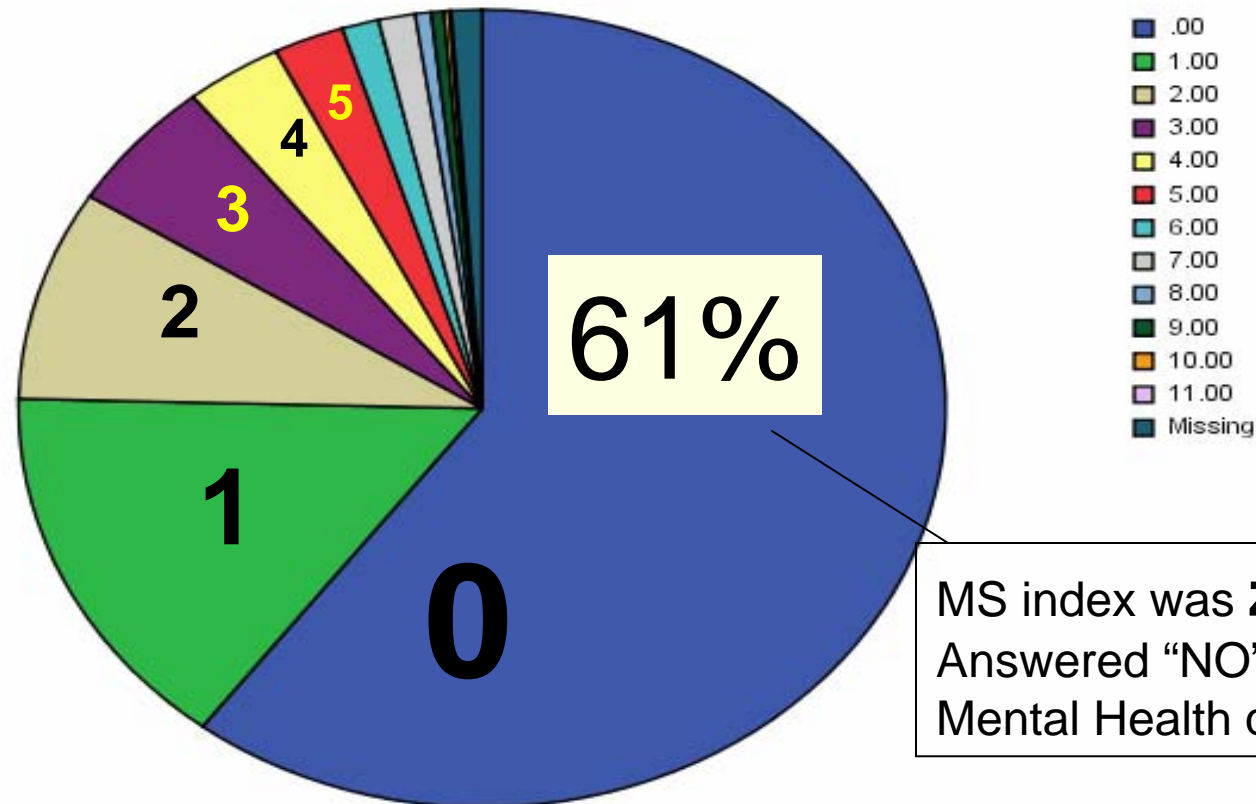
All were significantly associated to MS index at the .01 level.

Environmental Exposures (cont'd)

Independent Variable		N	Mean MS Index	P
Q17 Inspect destroyed military vehicles?	No	2015	.813	<.01
	Yes	682	1.66	
Q18 Warfare agents?	No	1759	.731	<.01
	Yes	76	2.07	
	Don't Know	862	1.54	
HCP5 Exposure concerns	No	2073	.848	<.01
	Yes	592	1.61	

Mental Stress Index % Distribution

Mental Stress Index Scores for Full Sample



Full Sample vs. Selected Cases

Independent Variable		Mean MS Index 1	Mean MS Index 2
Grade Group	E1-E4	1.10	2.64
	E5-E9	1.10	2.77
	W1-W4	.349	1.57
	O1-O3	.571	2.00
	O4-O9	.568	2.08

Full Sample
(MS Index 0-11)
N=2726

Selected Cases
(MS Index 1-11)
n=1053

Full Sample vs. Selected Cases (cont'd)

Independent Variable		Mean MS Index 1	Mean MS Index 2
HCP1 Health status	Poor	3.25	4.55
	Fair	2.29	3.55
	Good	1.18	2.66
	Very good	.645	2.02
	Excellent	.419	2.06
HCP6 Health concerns	Yes	1.60	3.08
	No	.849	2.42
HCP5 Exposure concerns	Yes	1.61	3.05
	No	.848	2.42

Some Factors to Consider

- This analysis can't determine causality.
- Some of those who fill out the mental health questions may also be more likely to fill out the rest of the form.
- Mental health symptoms may be underreported (fear of stigma or professional consequences)
- Some may be reluctant to indicate any kinds of concerns in order to avoid delaying their return.
- Mental health symptoms may not appear until months after the DD2796 is filled out.
- What does this unweighted index really tell us?

Weighted Mental Health Index

- **Classification And Regression Tree (CART)** uses a combination of computer-intensive searches and testing techniques to identify useful decision-tree structures of data.
- The CART methodology is technically known as binary recursive partitioning.
 - **Ranks the importance of variables with respect to predicting a particular outcome**

Weighted Mental Health Index (cont'd)

- Dependent/outcome variable
- Q1: Did your health change during this deployment?
 - Health stayed about the same or got better
 - Health got worse
- Independent variables
- Q7-13: Mental health and combat stress questions

Mental Stress Weights Generated by CART

Independent Variable	Score
Q11a: Little interest or pleasure in doing things	100.00
Q11b: Feeling down, depressed, or hopeless	97.37
Q12d: Numb/detached from others, activities, surroundings	77.23
Q10: Want help for stress, emotional, alcohol, family problem	70.63
Q13a: Thoughts of conflicts with spouse, family, friends	49.22
Q13b: Thoughts of hurting or losing control with someone	42.36
Q12a: Nightmares, unwanted thoughts of experiences	24.91
Q12b: Avoid thoughts, situations that remind of past events	22.97
Q12c: Constantly on guard, watchful, or easily startled	19.95
HCP4: Sought/intend to seek mental counseling/care	12.22
Q11c: Would be better off dead/hurting yourself	0.00

Conclusions

- Majority (61%) answered no to all mental health questions. But 39 % answered yes to at least one mental health question. Overall mean MS index was 1.03. However, among those who indicate mental health problems the mean was 2.63.
- Most demographics (including gender) were not significantly associated with mental stress index; however grade group was, with enlisted soldiers answering yes to more questions than officers.
- Questions indicating general health problems, exposure to combat stressors, perceptions of environmental exposures were all significantly related to mental stress index at the .01 level.

Limitations

- DD2796

- has not been validated
- was not designed specifically for epidemiologic analysis
- is not necessarily a sensitive screening tool
- is not meant to diagnose specific health problems

- It is possible that there are multiple entries by the same individual in this dataset.

Future Possibilities

- Eliminate duplicate forms.
- Get MOS, specific referral information
- Carry out multivariate analyses.
- Use clinician weighted mental stress index.
- Use CART to rank demographic, general health, combat stress, and environmental exposures as predictors for mental stress index as the outcome.
- Analyze each mental health question separately

Future Possibilities (cont'd)

- Analyze mental health outcome data:
 - medical visits before and after deployment
 - Veterans Health Administration records
 - **Post-Deployment Health Reassessment (DD Form 2900)**

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